ENVIRONMENTAL SCOPING DOCUMENT

Proposal name:	**Learmonth Bundle Site**
Proponent:	**Subsea 7 Australia Contracting Pty Ltd**
Assessment number:	**2136**
Location:	**Lots 233 and 1586 Learmonth and Exmouth Gulf**
Local Government Area:	**Shire of Exmouth**
Public review period:	**Environmental Review Document – 8 weeks**
EPBC reference no:	**2017/8079**

1. Introduction

The Environmental Protection Authority (EPA) has determined that the above proposal is to be assessed under Part IV of the *Environmental Protection Act 1986* (EP Act).

The purpose of the Environmental Scoping Document (ESD) is to define the form, content, timing and procedure of the environmental review, required by s. 40(3) of the EP Act. This ESD has been prepared by the EPA in consultation with the proponent, decision-making authorities and interested agencies consistent with the EPA's *Procedures Manual*.

Form

The EPA requires that the form of the report on the environmental review required under s. 40 (Environmental Review Document, ERD) is according to the Environmental Review Document template.

Content

The EPA requires that the environmental review includes the content outlined in sections 2 to 6 of this ESD.

Timing

Table 1 sets out the timeline for the assessment of the proposal agreed between the EPA and the proponent.

Table 1 Assessment timeline

Key assessment milestones	Completion Date
EPA approves Environmental Scoping Document	18 April 2018
Proponent submits first draft Environmental Review Document	5 October 2018
EPA provides comment on first draft Environmental Review Document (ERD) *(6 weeks from receipt of ERD)*	16 November 2018
Proponent submits revised draft Environmental Review Document	7 December 2018
EPA authorises release of Environmental Review Document for public review *(2 weeks from EPA approval of ERD)*	21 December 2018
Proponent releases Environmental Review Document for public review for 8 weeks	10 January 2019
Close of public review period	7 March 2019
EPA provides Summary of Submissions *(6 weeks from close of public review period)*	18 April 2019
Proponent provides Response to Submissions	3 May 2019
EPA reviews the Response to Submissions *(4 weeks from receipt of Response to Submissions)*	31 May 2019
EPA prepares draft assessment report and completes assessment *(6 weeks from EPA accepting Response to Submissions)*	12 July 2019
EPA finalises assessment report (including two weeks consultation on draft conditions) and gives report to Minister *(6 weeks from completion of assessment)*	23 August 2019

Procedure

The EPA requires the proponent to undertake the environmental review according to the procedures in the *Administrative Procedures* and the *Procedures Manual*, including requirements for public review.

The draft of this ESD was released for a two-week public review period. The final ESD will be available on the EPA website (www.epa.wa.gov.au) upon endorsement and must be appended to the Public Environmental Review (PER) document.

Accredited Assessment under the EPBC Act

The proposal has been referred and determined to be a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* and is being assessed by the Commonwealth of Australia and the State of Western Australia as an accredited assessment. The relevant matters of national environmental significance (MNES) for this proposal are:

- Listed threatened species and communities (sections 18 & 218A)
- Listed migratory species (sections 20 & 20A)
- The world heritage values of a declared World Heritage property (sections 12 & 15A)
- The heritage values of a National Heritage place (sections 15B & 15C)
- The environment of the Commonwealth marine area (sections 23 & 24A).

This ESD includes work required to be carried out and reported on in the ERD document in relation to MNES. The ERD will also address the matters in Schedule 4 of the *Environmental Protection and Biodiversity Conservation Regulations 2000*

MNES that may be impacted by the proposal will be identified and the potential impacts on these matters addressed within each relevant preliminary environmental factor as identified in Table 2. The ERD will include a separate section which summarises the potential impacts on MNES and describes, to the extent practicable, any feasible alternatives to the proposed action and possible mitigation measures. Proposed offsets to address significant residual impacts on MNES are also to be discussed.

2. The proposal

The subject of this ESD is the proposal by Subsea 7 Australia Contracting Pty Ltd to construct and operate an onshore pipeline bundle fabrication facility at Lots 233 and 1586 to the east of Minilya-Exmouth Road, Learmonth, approximately 35 km south of the Exmouth town site.

A pipeline bundle co-locates a number of services within a single pipeline for use in the development of offshore gas fields. It consists of an outer pipe with an inner insulated sleeve, within which flow lines, gas lines, communication lines and other control cables for gas field operation are contained.

The proposal consists of an onshore pipeline bundle fabrication site and associated infrastructure, two bundle tracks (approximately 10 km in length) along which the pipeline bundles will be constructed progressively as one, up to 10 km long segment.

Each pipeline bundle terminates with towhead structures at either end. The pipeline bundle is launched from a bundle launch way which crosses the beach and extends into the subtidal zone at Heron Point in the Exmouth Gulf (Figure 2).

Once launched the bundles are towed between two tugs at a controlled depth to the bundle laydown area (Figure 1) within which tow reconfiguration (this involves lowering of the pipeline bundle until the chains beneath it rest on the sea bed) may occur over a 24-hour period. The bundles will then continue to be towed offshore along a pre-determined route to Commonwealth Waters.

The key characteristics of the proposal are set out in tables 2 and 3. The key proposal characteristics may change as a result of the findings of studies and investigations conducted and the application of the mitigation hierarchy by the proponent.

Table 2 Summary of the proposal

Proposal title	Learmonth Bundle Site
Proponent name	Subsea 7 Australia Contracting Pty Ltd
Short description	The proposal is to construct and operate an onshore pipeline fabrication facility at Lots 233 and 1586 to the east of Minilya-Exmouth Road, Learmonth, approximately 35 km south of the Exmouth town site. The onshore pipeline bundle fabrication site and associated infrastructure includes two bundle tracks (approximately 10 km in length) along which the bundles will be constructed and launched from a bundle launch way which crosses the beach and extends into the subtidal zone at Heron Point in the Exmouth Gulf. Once launched the bundles will be towed along a pre-determined route between two tugs at a controlled depth to the bundle laydown area within which tow reconfiguration may occur before continuing offshore.

Table 3 Location and proposed extent of physical and operational elements

Element	Location	Proposed extent
Physical elements		
Bundle Fabrication facility and associated infrastructure including: • Fabrication site (up to 8 ha) includes: site offices, staff facilities, messing facilities storage area and car park. • Two Bundle Tracks (up to 35 ha) • Launchway facilities area (up to 1 ha) • Access roads (up to 3.5 ha) • Spray field (up to 1.5 ha) • Drainage sump (up to 0.5 ha)	Within the onshore area of the development envelope as shown in Figure 2	Clearing and disturbance of up to 170 ha of vegetation within a 502-ha development envelope.

• Hydro testing water pond (up to 0.5 ha) • Drains, access tracks, earthworks areas (up to 120 ha) • Reverse Osmosis Plant		
Bundle launchway	Within the intertidal /subtidal area of the development envelope as shown in Figure 2	Up to 380 m long (measured from dune line) by 15 m wide. Disturbance of up to 7.5 ha within a 502-ha development envelope.
Bundle laydown area	Within the laydown area development envelope as shown in Figure 1	Up to 1 ha of seabed disturbance within a 2,407-ha development envelope.
Bundle tow route	Within the Exmouth Gulf and Ningaloo Marine Park Ningaloo Coast World Heritage Property/ Ningaloo Coast World Heritage Place as shown in Figure 1	No ground or seabed disturbance To the extent of State Waters approximately 70 km

Operational elements		
Power generation	Within the onshore area of the development envelope as shown in Figure 2	4 x 800 kVA (kilovolt-ampere) diesel generators 645 kW solar array
Groundwater abstraction	Learmonth (onshore) to be determined	Abstraction of up to 16 ML/annum for potable and hydrotest water

Discharge via sprayfield, re-injection, infiltration/irrigation or evaporation pond (method to be determined)	Within the onshore area of the development envelope as shown in Figure 2	6.2 M/L of brine discharge/annum 5.6 M/L of treated waste water/annum
Bundle launch	Within the Exmouth Gulf and Ningaloo Marine Park/ Ningaloo Coast World Heritage Property/Ningaloo Coast World Heritage Place as shown in Figure 1	Nominally two days of offshore activity per launch, maximum of three launches per annum.
Bundle tow reconfiguration	Within the laydown area development envelope as shown in Figure 1	Bundle laydown (neutral buoyancy) within which temporary (<24 hours) tow re-configuration may occur.

3. Preliminary key environmental factors and required work

The preliminary key environmental factors for the environmental review are:

1. Benthic Communities and Habitat
2. Coastal Processes
3. Marine Environmental Quality
4. Marine Fauna
5. Flora and Vegetation
6. Subterranean Fauna
7. Terrestrial Fauna
8. Hydrological Processes
9. Inland Waters Environmental Quality
10. Social Surroundings

Table 4 recognises the regional context of the proposal and outlines the work required for issues that cut across multiple preliminary key environmental factors.

Table 5 outlines the work required for each preliminary key environmental factor and contains the following elements for each factor:

- **EPA factor** and **EPA objective** for that factor.
- **Relevant activities** – the proposal activities that may have a significant impact on that factor.

- **Potential impacts and risks** to that factor.
- **Required work** for that factor.
- **Relevant policy and guidance** – EPA (and other) guidance and policy relevant to the assessment.

Table 4 Regional Context and Integrating Issues

Regional Context and Integrating Issues	
Regional Context	The proposal is located in the Cape Range Region, with construction and operational activities having the potential to impact on the: Exmouth Gulf; Ningaloo Marine Park; Ningaloo Coast World Heritage Property/ Ningaloo Coast World Heritage Place; Cape Range Subterranean Waterways; and the significant environmental values they support.
Required work	The EPA has identified the following issues which cut across multiple preliminary key factors that need to be addressed in the PER document. 1. Provide information regarding the selection process for the proposal site and tow route, including an examination of the alternative options considered and the environmental constraints and values at risk for each alternative option, to demonstrate that the proposal site and tow route has been selected to avoid and minimise impacts. *Note: Information regarding the environmental constraints and values at risk for the alternatives options should be supported by environmental data.* 2. Discuss the regional and cumulative impacts of other existing or reasonably foreseeable development in the vicinity of the proposal with the potential to impact the same receptors and environmental values. 3. Provide details of proposed care and maintenance, and decommissioning and closure of the proposal. Provide details of the potential risks and impacts to environmental values, and details of mitigation and management measures to ensure that the impacts are not greater than predicted.
Peer Review	Commission, in consultation with the EPA, and include in the PER a peer review of the selection process for the proposal site and tow route (scope 1).

Table 5 Preliminary key environmental factors and required work

Benthic Communities and Habitat	
EPA objective	To protect benthic communities and habitats so that biological diversity and ecological integrity are maintained.

Benthic Communities and Habitat	
Relevant activities	• Construction of coastal infrastructure, operations of the proposal including bundle launch, towing and laydown, and closure and rehabilitation.
Potential impacts and risks	• Direct disturbance or loss of benthic communities and habitat during construction of the bundle launchway, during bundle launch and when being towed. • Indirect impacts to benthic communities and habitats due to altered sediment and water movement and flows caused by the bundle launchway and during launching activity. • Reduction in marine environmental quality that supports healthy benthic communities and habitat during construction and launching activity.
Required work	4. Characterise the environment by designing and conducting a benthic communities and habitat survey to accurately map the spatial extent of benthic habitats. Based on the findings of the surveys, produce geo-referenced maps showing the extent and distribution of the different benthic communities and habitats across the defined Local Assessment Unit (LAU) offshore of Heron Point, including all potential launch disturbance areas. Geo-referenced maps of benthic communities and habitats should also be provided for the bundle laydown area, and those areas potentially affected by the towing activities within the Exmouth Gulf, Ningaloo Marine Park/Ningaloo Coast World Heritage Property/Ningaloo Coast World Heritage Place and present these at the appropriate scale. Surveys should be conducted to a standard such that the results can be used as a baseline for future quantitative monitoring. This characterisation should also identify any critical windows of environmental sensitivity for benthic communities, particularly corals. **Note**: if surveys were undertaken at the referral stage, survey results/mapping and a demonstration of how the *Technical Guidance – Protection of Benthic Communities and Habitats*, December 2016 has been followed are to be included in the PER. 5. Assess the values and significance of benthic communities and habitats within the proposal area, and adjacent areas, and describe these values in a local and regional context. This assessment must also specifically address the values and significance of benthic communities and habitats which are: potentially affected by towing activities within the Exmouth Gulf, Ningaloo Marine Park Ningaloo Coast World Heritage Property/Ningaloo Coast World Heritage Place and Muiron Islands Marine Management Area; important for significant marine fauna (in particular *Dugong dugon and marine*

Benthic Communities and Habitat	
	turtles); and important for supporting commercial and recreational fisheries (including aquarium fisheries). 6. Identify elements of the proposal which may potentially affect benthic communities and habitat, including both direct and indirect impacts, and for both construction and operation. This should include impacts in the event of an accidental spill or incident; and damage to or loss of control of the pipeline bundle during launch and towing activities. 7. Predict the residual impacts from the proposal, both direct and indirect, on benthic communities and habitat after demonstrating how the mitigation hierarchy has been applied. Impact predictions are to: (a) Include the likely extent, severity and duration of direct and indirect impacts of the proposal on benthic communities and habitats. Predictions for both construction and operational impacts, are to include the most likely worst case, and the most likely best case loss scenarios. (b) Address any irreversible loss of, or serious damage to, benthic communities and habitat, in the context of *Technical Guidance – Protection of Benthic Communities and Habitats*, December 2016 including an appropriately defined local assessment unit and an assessment of the significance of any loss, including cumulative loss. (c) Include a risk assessment identifying potential impacts to benthic communities and habitat: that provides habitat for conservation significant or locally important marine fauna; that provides habitat for commercial and recreational fisheries; and that may be potentially affected by towing activities within the Exmouth Gulf, Ningaloo Marine Park Ningaloo Coast World Heritage Property/Ningaloo Coast World Heritage Place and Muiron Islands Marine Management Area. This risk assessment should include consideration of accidental spills or incidents, including damage to or loss of control of the pipeline bundle during launch and towing activities. 8. Include details of the monitoring and management to occur during and after construction of the proposal, and during ongoing operations to demonstrate that residual impacts are not greater than predicted at the launch site, pipe laydown area and along the tow path. 9. Describe the likely consequences for the ecological integrity and biological diversity of the benthic communities and habitats that the identified impacts may have and include a description of the likely impact any changes may have on other dependent factors.

Benthic Communities and Habitat	
	10. Determine and quantify any significant residual impacts by applying the Residual Impact Significance Model (page 11) and WA Offset Template (Appendix 1) in the *WA Environmental Offset Guidelines* (2014). 11. Where significant residual impacts remain, propose an appropriate offset package that is consistent with the *WA Environmental Offsets Policy and Guidelines and where residual impacts relate to EPBC Act-listed threatened and/or migratory species the Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*. Spatial data defining the areas of significant residual impacts should be provided.
Relevant policy and guidance	***EPA Policy and Guidance*** *Statement of Environmental Principles, Factors and Objectives*, EPA, 2016 *Instructions on how to prepare an Environmental Review Document*, EPA 2016 *Environmental Factor Guideline – Benthic Communities and Habitats*, EPA, December 2016 *Technical Guidance – Protection of Benthic Communities and Habitats*, EPA, December 2016 ***Other policy and guidance*** *WA Environmental Offsets Policy*, Government of Western Australia, 2011 *WA Environmental Offsets Guidelines,* Government of Western Australia, 2014 *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*, Department of Sustainability, Environment, Water, Population and Communities, October 2012 *Management Plan for the Ningaloo Marine Park and Muiron Islands Marine Management Area 2005 – 2015*. Department of Conservation and Land Management, Department of Conservation and Land Management and Marine Parks and Reserves Authority, Perth, Western Australia

Coastal Processes	
EPA objective	To maintain the geophysical processes that shape coastal morphology so that the environmental values of the coast are protected.
Relevant activities	• Construction of coastal infrastructure, closure and decommissioning.

Coastal Processes	
Potential impacts and risks	• Construction of the launchway may locally alter wave and current conditions, interrupting existing longshore and cross-shore sediment dynamics. • Construction of the launchway may trap sediment and cause further loss of near shore benthic communities and habitat. • Disruption of longshore sediment transport may alter downdrift sediment supply, causing dune and beach erosion adjacent to the launchway. • Construction of the launchway may alter wave overwash and drainage during extreme flooding events, with possible implications for dune stability.
Required work	12. Characterise the environment by describing the current coastal processes in the proximity to the proposal. This is to include, but not be limited to, (a) conducting a detailed analysis of existing long-shore sediment movements and variability over at least 20 years to estimate erosional and depositional patterns including for cross-shore processes; (b) conduct an analysis of cross-shore processes and variability over at least 20 years; (c) spatially quantify the coastal morphology by presenting beach profiles and aerial imagery or a more detailed representation (e.g. unmanned aerial vehicle survey); and (d) characterise erosion and inundation provided by extreme events, particularly the potential effects of severe tropical cyclones. The characterisation is to consider all temporal scales including seasonal, inter-annual and episodic. The spatial scale must be adequate to address all coastal processes and patterns likely to be affected as a result of the proposal. Characterisation should extend beyond the limits of where impacts may potentially occur to provide a baseline for subsequent evaluation. 13. Identify elements of the proposal which may potentially affect coastal processes, including both direct and indirect impacts and for both construction and operation. 14. Predict the residual impacts from the proposal, both direct and indirect, after outlining any avoidance, mitigation and management options that will be applied. Impact predictions are to:

Coastal Processes	
	(a) Be provided at a sufficient scale to allow all impacts resulting from the proposal to both up and down coastal processes as well as onshore-offshore. (b) Be informed by monitoring previously undertaken in the local area. (c) Predict near-field responses to the proposed coastal facilities, including anticipated updrift and downdrift coastal change. Information should include forecast changes to beach morphology over the intended service life of the facility (e.g. predicted beach profiles). (d) Determine changes to local current and wave climate, long-shore sediment movements and erosional and deposition patterns (including cross-shore processes). (e) Consider and assess the cumulative effects from and to any other approved or reasonably foreseeable coastal developments. (f) Be for both the short and long-term (100-year planning horizon or planning horizon relevant to the service life of the facility); be provided for best, most likely and worst case scenarios; and consider the likely impacts of climate change within the service life of the facility. (g) Address the frequency, volume and potential environmental impacts of sand bypassing/backpassing adjacent to the proposal. (h) Address the requirements of State Planning Policy 2.6, particularly with regard to setback and coastal risk management. 15. Identify management and mitigation measures to ensure residual impacts are not greater than predicted. 16. Outline the proposed ongoing governance arrangements for the management of coastal processes including the roles and responsibilities for sand bypassing/backpassing requirements where required. 17. Include details of monitoring and management that will apply during and after construction to demonstrate and ensure that residual impacts to coastal processes are not greater than predicted. 18. Identify the proposed service life of the facility and anticipated service life of the facility and anticipated process of decommissioning. Include details of mitigation, monitoring and management that will apply during and after decommissioning.

Coastal Processes	
Relevant policy and guidance	***EPA Policy and Guidance*** *Statement of Environmental Principles, Factors and Objectives*, EPA, 2016 *Instructions on how to prepare an Environmental Review Document*, EPA 2016 *Environmental Factor Guideline – Coastal Processes*, EPA, December 2016 ***Other policy and guidance*** State Planning Policy No. 2.6, *State Coastal Planning Policy,* Western Australian Planning Commission, 2006 *Sea Level Change in Western Australia - Application of Coastal Planning*, Department of Transport Coastal Infrastructure, Coastal Engineering Group, 2010 *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*, Department of Sustainability, Environment, Water, Population and Communities, October 2012
Peer Review	Commission, in consultation with the EPA, and include in the PER a peer review of the coastal process assessment and the predicted impacts to coastal process (scopes 12 and 14).

Marine Environmental Quality	
EPA objective	To maintain the quality of water, sediment and biota so that environmental values are protected.
Relevant activities	• Construction of the coastal infrastructure and operations of the proposal, including bundle launch, tow and laydown. • Closure and decommissioning of coastal infrastructure.
Potential impacts and risks	• Construction of the bundle launchway may temporarily affect water quality due to increased turbidity and the release of any nutrients and contaminants in disturbed sediment. This may also occur during closure and decommissioning. • Placement of material for the launchway and leaching of fines from the material may cause temporary turbidity during and after the material is placed. • Vessel operations (including propeller wash) and dragging pipelines across the seabed in shallow water during launching activity may disturb sediments. • Unplanned releases of chemicals or hydrocarbons associated with launch and tow activities; and accidental collisions or ship grounds.

Marine Environmental Quality	
Required work	19. Conduct monitoring as necessary to characterise the existing marine environmental quality (baseline water and sediment quality) in the area potentially affected by the proposal. The characterisation needs to be informed by an assessment of threats and pressures to marine environmental values, both ecological and social. The characterisation is to inform the environmental quality monitoring and management plans required in 24. 20. Provide an Environmental Quality Plan (EQP) that spatially defines the Environmental Values (EVs), Environmental Quality Objectives (EQOs) and Levels of Ecological Protection (LEPs) that apply to the area. The EQP shall be consistent with *Technical Guidance: Protecting the quality of Western Australia's marine environment*, December 2016 and have regard for *the Pilbara Coastal Water Quality Outcomes: Environmental Values and Environmental Quality Objectives,* Map 6 (Department of Environment, 2006). 21. Identify elements, activities and potential inputs of the proposal which may potentially affect marine environmental quality, for both construction and operation. 22. Describe the marine system and the cause and effect pathways of each element, activity or input from the proposal on marine environmental quality. 23. Predict the extent, severity and duration of any impacts from the proposal, after outlining any avoidance and mitigation options that will be applied. Impact predictions are to be presented in the context of the EQP for: a. Construction of coastal infrastructure Predicted impacts should also be presented spatially as an overlay to the EQP to identify where the EV's, EQO's and LEP's may not be achieved during construction. b. Operation/maintenance of fabrication site Predicted impacts should also be presented spatially as an overlay to the EQP to identify where the EV's, EQO's and LEP's may not be achieved during operations/maintenance of the fabrication site. c. During bundle launch, laydown and towing Predicted impacts should include an assessment of risk from spills, accidents and collisions during towing activities (under a range of scenarios) particularly when towing occurs in the Ningaloo Marine Park/Ningaloo Coast World Heritage Property/Ningaloo Coast World Heritage Place and adjacent to the Muiron Islands Marine Management Area.

Marine Environmental Quality	
	Predicted impacts should also be presented spatially as an overlay to the EQP to identify where the EV's, EQO's and LEP's may not be achieved during bundle launch, laydown and towing. 24. Identify management and mitigation measures to ensure residual impacts are not greater than predicted. The PER is to include: (a) A Marine Construction Monitoring and Management Plan (MCMMP) that includes the protocols and procedures for monitoring of key environmental quality indicators (e.g. turbidity, light attenuation coefficient, visual records etc.) and management of environmental quality (e.g. silt curtains, pre-washing of material for launchway etc.) to ensure that the construction of the proposal achieves the proposed EQOs/LEPs defined in the EQP. (b) Include details of the monitoring and management to occur during and after construction of the proposal, and during ongoing operations (bundle launch and tow) to demonstrate that residual impacts to water quality are not greater than predicted. (c) A Marine Emergency Response Plan that includes procedures to be implemented during operations which specifically address measures to be implemented in the event of an accidental spill or incident, including damage to or loss of control of the pipeline bundle during launch and towing activities.
Relevant policy and guidance	***EPA Policy and Guidance*** *Statement of Environmental Principles, Factors and Objectives*, EPA, 2016 Instructions on how to prepare an Environmental Review Document, EPA, 2016 Environmental Factor Guideline – *Marine Environmental Quality*, EPA, December 2016 *Technical Guidance: Protecting the quality of Western Australia's marine environment*, EPA, December 2016 ***Other policy and guidance*** *Pilbara Coastal Water Quality Outcomes: Environmental Values and Environmental Quality Objectives,* Department of Environment, 2006 *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*, Department of Sustainability, Environment, Water, Population and Communities, October 2012 *Management Plan for the Ningaloo Marine Park and Muiron Islands Marine Management Area 2005 – 2015*. Department of Conservation and Land Management, Department of Conservation and Land Management and Marine Parks and Reserves Authority, Perth, Western Australia

Marine Fauna	
EPA objective	To protect marine fauna so that biological diversity and ecological integrity are maintained.
Relevant activities	• Construction and physical presence of coastal infrastructure. • Operational activities including vessel movements, bundle launch, laydown and towing. • Closure and decommissioning of coastal infrastructure.
Potential impacts and risks	• Construction and operation activities may cause temporary displacement of marine fauna through noise impacts. • Direct impacts and temporary displacement to marine fauna through, noise and light, vessel and bundle movement, strikes and entanglement during construction and operational activities. • Loss or degradation of marine fauna habitat, including a reduction in availability of foraging habitat or as a result of changes to coastal processes, from construction and operation activities, including potential impacts from light spill from the launch way and onshore facilities. • Increased risk of introduced marine species from vessels during both construction and operations. • Potential impacts to commercial and recreational fishing species, through direct and indirect impacts from construction and operation such as changes to water and nutrient flows and processes, and loss of habitat. • Unplanned releases of chemicals or hydrocarbons associated with launch and tow activities, accidental collisions and loss of control of pipeline bundle during launch, laydown, towing, or ship groundings.
Required work	25. Identify and assess the values and significance of marine faunal assemblages within the proposal area (including the Exmouth Gulf area and area of the Ningaloo Marine Park/ Ningaloo Coast World Heritage Property/Ningaloo Coast World Heritage Place and Muiron Islands Marine Management Area which is potentially affected by the operation of the proposal) and describe these values in a local, regional and State context. For listed species, this must include information on the abundance, distribution, ecology and habitat preferences, together with baseline information and mapping of local and regional occurrences. 26. Identify critical windows of environmental sensitivity for marine fauna in the proximity of the proposal area, including conservation significant or locally important marine fauna (including migratory

Marine Fauna	
	coastal birds) and species important to commercial and recreational fisheries in the proposal area and immediate adjacent area. 27. Describe the presence of marine fauna in the proximity of the proposal area, including marine mammals, other conservation significant or locally important marine fauna (including migratory coastal birds) and species important to commercial and recreational fisheries in the proximity to the proposal area, and document any known uses of the area by them (e.g. foraging, migrating, calving and nursing, spawning, roosting and nesting etc.). For listed species, this must include: (a) a population size and importance of the population from a local and regional perspective; and (b) information on conservation value of each habitat type (e.g. breeding, migration, feeding, resting, interesting, etc.) from a local and regional perspective, including the percentage representation of each habitat site in relation to its local and regional extent. 28. Identify the construction and operational elements of the proposal that may affect conservation significant or locally important marine fauna and marine fauna habitat. 29. Describe and assess the potential direct and indirect impacts that may result from construction and operation of the proposal to marine mammals, other conservation significant or locally important marine fauna (including migratory coastal birds) and species important to commercial and recreational fisheries and their habitat. 30. Identify any significant gaps in knowledge for conservation significant or locally important marine fauna in the proposal area and assess the importance and/or significance of those gaps with respect to identifying and managing impacts of the proposal, and where required conduct investigations to address these critical knowledge gaps. 31. Identify any known marine pests or pathogens in the area which is potentially affected by the operation of the proposal, and/or adjacent waters. Conduct a risk assessment to identify whether the proposed activities are likely to introduce or extend the range of introduced marine pests or pathogens. Identify the control measures by which these may be avoided/mitigated. Based on the outcomes of the risk assessment determine in consultation with EPA Services and the Department of Primary Industries and Regional Development whether a there is a need to design and conduct a baseline survey in accordance with the guidelines provided by the Australian National System for the Prevention of Marine Pest Incursions.

Marine Fauna	
	32. Identify measures to mitigate adverse impacts on marine fauna in the proximity of the proposal area (including the tow area), including marine mammals, other conservation significant or locally important marine fauna (including migratory coastal birds) and species important to commercial and recreational fisheries and their habitat. This is to include management and monitoring protocols for introduced marine organisms during construction and operation and protocols to reduce the impacts to marine fauna during construction and operation to ensure that residual impacts to marine fauna are not greater than predicted. This should include procedures to be implemented in the event of an accidental spill or incident, including damage to or loss of control of the pipeline bundle during launch and towing activities. 33. Predict the residual impacts from the proposal, both direct and indirect, after outlining any avoidance and mitigation options that will be applied. Impact predictions, should consider both short and long term impacts, how the proposal may change marine fauna patterns of use and cumulative impacts. This should include an assessment of the risk posed to any listed species as a result of the proposal. 34. Determine and quantify any significant residual impacts by applying the Residual Impact Significance Model (page 11) and WA Offset Template (Appendix 1) in the *WA Environmental Offsets Guidelines* (2014). 35. Where significant residual impacts remain, propose an appropriate offsets package that is consistent with the WA Environmental Offsets Policy and Guidelines *and where residual impacts relate to EPBC Act-listed threatened and/or migratory species the Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*. Spatial data defining the area of significant residual impacts should also be provided.
Relevant policy and guidance	***EPA Policy and Guidance*** *Statement of Environmental Principles, Factors and Objectives*, EPA 2016 *Instructions on how to prepare an Environmental Review Document,* EPA 2016 Environmental Factor Guideline – *Marine Fauna,* EPA, December 2016 ***Other policy and guidance*** *WA Environmental Offsets Policy,* Government of Western Australia, 2011 *WA Environmental Offsets Guidelines*, Government of Western Australia, 2014

Marine Fauna	
	Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy, Department of Sustainability, Environment, Water, Population and Communities, October 2012 *Biofouling Biosecurity Policy*, Department of Fisheries, 2017 Marine bioregional plan for the North-west Marine Region, Department of Sustainability, Environment, Water Population and Communities ,2012 Relevant recovery plans, conservation advices and/or threat abatement plans for conservation significant species that are known to occur, or are likely to occur in the vicinity of the proposal area and tow route through Ningaloo Marine Park/Ningaloo Coast World Heritage Property and the Ningaloo Coast World Heritage Place

Flora and Vegetation	
EPA objective	To protect flora and vegetation so that biological diversity and ecological integrity are maintained.
Relevant activities	• Clearing of up to 170 ha of vegetation. • Groundwater abstraction, reinjection and/or alteration of surface water flows. • Construction and operational activities. • Closure and decommissioning.
Potential impacts and risks	• Direct clearing of flora and vegetation during construction. • Indirect impacts on flora and vegetation from: - dust during construction; - the introduction and spread of weeds; - fragmentation of vegetation; and - changes to surface or ground water flows and quality.
Required work	36. Identify and characterise the flora and vegetation of areas that may be directly or indirectly impacted by the proposal in accordance with Technical Guidance - *Flora and Vegetation Surveys for Environmental Impact Assessment*, December 2016. Demonstrate how surveys are relevant, representative and demonstrate consistency with current EPA policy and guidance set out below. Include a summary of survey findings in accordance with relevant guidelines set out below. **Note**: if surveys were undertaken at the referral stage, survey results and a demonstration of how the guidance has been followed are to be included in the PER. Ensure species database searches and taxonomic identifications are up-to-date.

Flora and Vegetation	
	37. Identify and describe the vegetation and significant flora species present and likely to be present within the development envelope, and any areas that may be indirectly impacted by the proposal beyond the development envelope. Include an analysis of the significance of flora and vegetation in local, regional and State contexts as appropriate in accordance with the relevant guidance set out below. 38. Provide a map depicting the recorded locations of the significant flora, ecological communities and significant vegetation in relation to the development envelope in accordance with the relevant guidelines set out below. 39. Assess the potential direct and indirect impacts of the construction and operational elements of the proposal on identified environmental values. Include a quantitative assessment of levels of impact on significant flora, listed ecological communities and all vegetation units. Describe and assess the extent of any cumulative impacts within local, regional and State contexts as appropriate. 40. Describe and justify any proposed mitigation to reduce the potential impacts of construction and operation of the proposal. Include any proposed management and/or monitoring plans that will be implemented pre- and post-construction to ensure residual impacts are not greater than predicted. 41. Identify, describe and quantify the potential residual impacts (direct, indirect and cumulative) that may occur following implementation of the proposed after considering and applying avoidance and minimisation measures. 42. Determine the significance of any significant residual impacts on the identified environmental values by applying the Residual Impact Significance Model (page 11) and WA Offset Template (Appendix 1) in the *WA Environmental Offsets Guidelines* (2014). Provide spatial data defining the area of significant residual impacts. 43. Where significant residual impacts remain, propose an appropriate offsets package that is consistent with the WA Environmental Offsets Policy and Guidelines *and where residual impacts relate to EPBC Act-listed threatened and/or migratory species the Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*.
Relevant policy and guidance	***EPA Policy and Guidance*** *Statement of Environmental Principles, Factors and Objectives*, EPA, 2016 *Instructions on how to prepare an Environmental Review Document*, EPA, 2016

Flora and Vegetation	
	Environmental Factor Guideline – *Flora and vegetation*, EPA, December 2016 *Technical Guidance: Flora and vegetation surveys for environmental impact assessment*, EPA, December 2016 ***Other policy and guidance*** WA Environmental Offsets Policy, Government of Western Australia, 2011 *WA Environmental Offsets Guidelines,* Government of Western Australia, 2014 *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*, Department of Sustainability, Environment, Water, Population and Communities, October 2012

Subterranean Fauna	
EPA objective	To protect subterranean fauna so that biological diversity and ecological integrity are maintained.
Relevant activities	• Clearing and excavation. • Physical presence of infrastructure. • Water abstraction. • Waste generation, storage and disposal including brine and treated waste water discharge. • Closure and decommissioning.
Potential impacts and risks	• Mortality and loss of habitat from excavation and physical presence of infrastructure. • Impacts to subterranean fauna from: - abstraction and/or reinjection of groundwater. - changes to hydrological regimes and water quality - groundwater contamination. • Impacts to the Directory of Important Wetlands in Australia Cape Range Subterranean Waterways -WA006.
Required work	44. In accordance with EPA guidance: a) conduct a desktop study, incorporating existing regional subterranean fauna surveys and databases; and b) undertake surveys to identify and characterise subterranean fauna and subterranean fauna habitat at a local and regional scale that may be impacted directly and indirectly by the implementation of the proposal. This should include sampling

Subterranean Fauna	
	inside and outside the impact areas and consider cumulative impacts. **Note**: Where surveys were undertaken at the referral stage, survey results and a demonstration of how the guidance has been followed are to be included in the PER. Ensure species database searches and taxonomic identifications are up-to-date. Where results from previous surveys are relied on for context, justification should be provided to demonstrate that they are relevant and consistent with EPA Guidance. 45. Provide figure(s) showing the extent of subterranean fauna habitat in relation to the proposal and species distributions. 46. Describe and assess the extent of direct, indirect and cumulative impacts as a result of implementation of the proposal during both construction and operations to subterranean fauna, taking into consideration the significance of subterranean fauna and subterranean fauna habitat. 47. Predict the residual impacts from the proposal on subterranean fauna after considering and applying avoidance and minimisation measures. 48. Identify management measures for the proposal to ensure residual impacts to subterranean fauna are not greater than predicted. 49. Determine and quantify any significant residual impacts by applying the Residual Impact Significance Model (page 11) and WA Offset Template (Appendix 1) in the *WA Environmental Offsets Guidelines* (2014). 50. Where significant residual impacts remain, propose an appropriate offsets package that is consistent with the WA Environmental Offsets Policy and Guidelines *and where residual impacts relate to EPBC Act-listed threatened and/or migratory species the Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*. Spatial data defining the area of significant residual impacts should also be provided.
Relevant policy and guidance	***EPA Policy and Guidance*** *Statement of Environmental Principles, Factors and Objectives*, EPA, 2016 *Instructions on how to prepare an Environmental Review Document,* EPA, 2016 Environmental Factor Guideline – *Subterranean Fauna*, EPA, December 2016 *Technical Guidance: Subterranean fauna survey*, EPA, December 2016 *Technical Guidance: Sampling methods for subterranean fauna*, EPA, December 2016

Subterranean Fauna	
	Other policy and guidance *WA Environmental Offsets Policy,* Government of Western Australia, 2011 *WA Environmental Offsets Guidelines,* Government of Western Australia, 2014 *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*, Department of Sustainability, Environment, Water, Population and Communities, October 2012 Relevant recovery plans, conservation advices and/or threat abatement plans for conservation significant species that are known to occur, or are likely to occur in the vicinity of the proposal area.

Terrestrial Fauna	
EPA objective	To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.
Relevant activities	• Clearing of up to 170 ha of fauna habitat. • Vehicle movement. • Physical presence of infrastructure. • Closure and decommissioning.
Potential impacts and risks	• Loss of up to 170 ha of fauna habitat. • Direct loss from vehicle movements. • Indirect impacts to fauna habitat as a result of: - barrier effects of the physical presence of infrastructure and fragmentation of habitat and populations; - degradation of habitat from introduction and increased spread of weeds/dust; - alteration of fire regimes; - alteration of habitat as a result of changes to coastal processes or hydrodynamic/ hydrological regimes; and - introduction of feral animals resulting in increased predation and competition.
Required work	51. In accordance with the requirements of EPA Guidance: (a) conduct a desktop study, incorporating existing regional terrestrial fauna surveys and databases; and (b) undertake terrestrial fauna surveys, to identify and characterise terrestrial fauna and fauna habitat, at a local and regional scale, that may be impacted directly and indirectly by the implementation of the proposal. This should include sampling

Terrestrial Fauna	
	inside and outside the impact areas and consider cumulative impacts. For listed species, this must include information on: I. the abundance, distribution, ecology and habitat preferences, together with baseline information and mapping of local and regional occurrences. II. a population size and importance of the population from a local and regional perspective; and III. information on conservation value of each habitat type (e.g. breeding, migration, feeding, resting, interesting, etc.) from a local and regional perspective, including the percentage representation of each habitat site in relation to its local and regional extent. **Note**: if surveys were undertaken at the referral stage, survey results and a demonstration of how the guidance has been followed are to be included in the PER. Ensure species database searches and taxonomic identifications are up-to-date. Where results from previous surveys are relied on for context, justification should be provided to demonstrate that they are relevant and consistent with EPA Guidance. 52. Describe the values and significance of fauna and fauna habitat that maybe impacted directly and indirectly by implementation of the proposal during both construction and operations and describe the significance of these values in a local and regional context. 53. Provide a map illustrating the known recorded locations of conservation significant species, short-range endemic invertebrate species or other significant fauna and fauna habitat in relation to the proposal. 54. Describe and assess the extent of direct and indirect impacts as a result of implementation of the proposal during both construction and operations to terrestrial fauna taking into consideration cumulative impacts and the significance of fauna and fauna habitat. This should include an assessment of the risk posed to any listed species as a result of the proposal. 55. Predict the residual impacts to terrestrial fauna after considering and applying avoidance and minimisation measures. 56. Discuss proposed management, monitoring and mitigation methods to be implemented to ensure residual impacts (direct and indirect) are not greater than predicted. 57. Determine and quantify any significant residual impacts by applying the Residual Impact Significance Model (page 11) and WA Offset Template (Appendix 1) in the *WA Environmental Offsets Guidelines* (2014).

Terrestrial Fauna	
	58. Where significant residual impacts remain, propose an appropriate offsets package that is consistent with the WA Environmental Offsets Policy and Guidelines *and where residual impacts relate to EPBC Act-listed threatened and/or migratory species the Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*. Spatial data defining the area of significant residual impacts should also be provided.
Relevant policy and guidance	***EPA Policy and Guidance*** *Statement of Environmental Principles, Factors and Objectives*, EPA, 2016 *Instructions on how to prepare an Environmental Review Document,* EPA, 2016 Environmental Factor Guideline – *Terrestrial Fauna*, EPA, December 2016 *Technical Guidance: Sampling methods for terrestrial vertebrate fauna*, EPA, December 2016 *Technical Guidance: Terrestrial fauna surveys*, EPA, December 2016 *Technical Guidance: Sampling of short range endemic invertebrate fauna*, EPA, December 2016 ***Other policy and guidance*** *WA Environmental Offsets Policy*, Government of Western Australia, 2011 *WA Environmental Offsets Guidelines*, Government of Western Australia, 2014 *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy, Department of Sustainability*, Environment, Water, Population and Communities, October 2012 Relevant recovery plans, conservation advices and/or threat abatement plans for conservation significant species that are known to occur, or are likely to occur in the vicinity of the proposal area.

Hydrological Processes and Inland Waters Environmental Quality	
EPA objective	To maintain the hydrological regimes of groundwater and surface water so that environmental values are protected. To maintain the quality of groundwater and surface water so that environmental values are protected.
Relevant activities	• Physical presence of infrastructure. • Alteration of natural drainage regimes, including from road construction and possible alteration of overwash and drainage pathways.

Hydrological Processes and Inland Waters Environmental Quality	
	• Groundwater abstraction and/or reinjection of treated wastewater. • Discharge of stormwater, brine and treated wastewater. • Disturbance or exposure of acid sulphate soils. • Storage and handling of hydrocarbons and other chemicals. • Closure and decommissioning.
Potential impacts and risks	• Impacts to natural surface water flows and contamination of surface water as a result of placement of infrastructure. • Alteration of surface water flows may result in changes to natural erosion and deposition patterns which could increase the turbidity of surface water. • Disposal of brine and treated wastewater has the potential to impact surface and groundwater resources. • Exposure or disturbance of acid sulphate soils have potential to impact water quality. • Handling and storage of hydrocarbons and other chemical has the potential to impact ground and surface water quality through spills and leaks. • Alteration of the hydrology of the area from groundwater abstraction and reinjection of treated wastewater. • Alteration of groundwater volumes and quality, due to groundwater abstraction; and reinjection of treated wastewater. • Impacts to any wetlands, groundwater dependent ecosystems, and subterranean fauna, as a result of groundwater drawdown and changes to groundwater quality.
Required work	59. Characterise the baseline hydrological and hydrogeological regimes and water quality and quantity, both in a local and regional context, including, but not limited to, water levels including the fluctuation of the aquifer system in response to tides and storm events, water chemistry, presence of acid sulphate soils, stream flows, flood patterns, spatial characteristics of the fresh/saline groundwater interface, aquifer characteristics and recharge potential. 60. Identify the location of abstraction bores for water requirements and identify and discuss any associated impacts of groundwater abstraction including from drawdown. 61. Provide a detailed description of the design and location of the proposal with the potential to impact surface and ground water, including the extent of discharges and/or reinjection, and the disturbance of acid sulphate soils, if present.

Hydrological Processes and Inland Waters Environmental Quality	
	62. Undertake hydrological investigations to determine the effects of any proposed surface discharge, reinjection and modified drainage will have on the surface and ground water quality and quantity of the likely direct and indirect impact areas taking into account cyclonic conditions, cumulative impacts and a range of climatic scenarios including probable maximum precipitation. 63. Predict the residual impacts on hydrological processes and inland waters environmental quality, for direct, indirect and cumulative impacts, after considering avoidance and minimisation measures. 64. Identify management, mitigation and monitoring methods to be implemented for the proposal to ensure residual impacts are not greater than predicted. 65. Where significant residual impacts remain, and relate to MNES, propose an appropriate offsets package that is consistent with the *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*. Spatial data defining the area of significant residual impacts should also be provided
Relevant policy and guidance	***EPA Policy and Guidance*** *Statement of Environmental Principles, Factors and Objectives*, EPA, 2016 *Instructions on how to prepare an Environmental Review Document,* EPA, 2016 Environmental Factor Guideline - *Hydrological Processes*, EPA, December 2016 Environmental Factor Guideline – *Inland Waters Environmental Quality*, EPA, December 2016 **Other policy and guidance** *Identification and investigation of acid sulphate soils and acidic landscapes*, Department of Environment Regulation, June 2015 *Treatment and management of soil and water in acid sulphate soil landscapes,* Department of Environment Regulation, June 2015 *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*, Department of Sustainability, Environment, Water, Population and Communities, October 2012

Social Surroundings	
EPA objective	To protect social surroundings from significant harm.
Relevant activities	• Clearing of vegetation and site works.

Social Surroundings	
	• Physical presence of infrastructure and operations of the proposal, including bundle launch, tow and laydown. • Closure and decommissioning.
Potential impacts and risks	• Disturbance to Aboriginal heritage places and/or cultural associations within the area. • Temporary and/or permanent constraint on access and traditional cultural activities. • Changes to the environment which may impact on Aboriginal heritage places. • Impacts to the heritage values of the Ningaloo Coast World Heritage Property and the Ningaloo Coast World Heritage Place. • Impacts to amenity values (including visual landscape, scenic and visual aesthetic values and recreational tourism) in a marine park. • Impacts to the social values (e.g. aesthetics or active use) of the proposal area it supports (temporarily or permanently). • Impacts to commercial fishing and recreational fishing operations/business (including but not limited: to aquarium fisheries, permit, sport and fly fisheries, prawn fisheries) and tourism activities in the proposal area.
Required work	66. Characterise the heritage and cultural values of the proposal area, including for the Ningaloo Coast World Heritage Property and the Ningaloo Coast World Heritage Place, and any other areas that may be indirectly impacted to identify sites of significance and their relevance within a wider regional context. 67. Conduct appropriate Aboriginal heritage surveys to identify Aboriginal sites, values and/or cultural associations. 68. Conduct appropriate consultation to identify concerns in regard to environmental impacts as they affect heritage matters. 69. Provide a detailed description and figure(s) of the proposed disturbance and impacts to heritage sites, values and/or cultural associations, including for the Ningaloo Coast World Heritage Property/Ningaloo Coast World Heritage Place associated with the proposal. 70. Assess the impacts on heritage sites, values and/or cultural associations, including for the Ningaloo Coast World Heritage Property and the Ningaloo Coast World Heritage Place, associated with the implementation of the proposal, including those resulting from changes to the environment which may impact on cultural and heritage significance or values.

Social Surroundings	
	71. Predict the residual impacts on heritage sites, values and/or cultural associations, for direct, indirect and cumulative impacts after considering the mitigation hierarchy. 72. Outline the mitigation and management measures to ensure impacts to heritage sites, values and/or cultural associations (direct and indirect) are minimised, and not greater than predicted. 73. Characterise the environment by providing a description of the visual landscape character and scenic quality values and provide maps of the visual landscape units that may potentially be visually affected. This should include, but not be limited to: landforms; vegetation; and waterways/bodies and can be undertaken by way of 3-dimensional modelling and/or photographs. 74. Characterise the current, and any other reasonably foreseeable, land and recreation uses and amenity values (including for visual, noise, odour and dust) of the proposal area. 75. Identify and discuss the potential sources and impacts of noise, dust, light-spill and alteration to landscape from the proposal. 76. Design and undertake a visual impact assessment (VIA) for before, during construction, after construction, during operations, and after closure and decommissioning, to assess the impacts of the proposal on visual amenity in accordance with the Western Australian Planning Commission (2007) *Visual Landscape Planning in Western Australia: a manual for evaluation, assessment, siting and design*. 77. The VIA will identify and describe the aspects of the proposal which may potentially affect the visual landscape character and scenic quality values both temporarily and permanently, using agreed (by the EPA) reference and vantage points of surrounding areas and use area's viewer positions and perceptions. 78. Predict the residual amenity impacts from the proposal on the landscape, land and recreation use and amenity values (including visual, noise, odour and dust) after considering and applying avoidance and minimisation measures. Impact predictions are to include, but not be limited to: a. The likely extent, severity and duration of the impacts; and b. Simulations/modelling of the predicted residual impacts from the proposal, including changes to the landscape from the agreed reference and vantage points. Include the cumulative impacts on amenity (visual, noise, odour and dust) from the proposal and other currently approved developments. 79. Review the social implications of the proposal to planned activities within Ningaloo Marine Park, in the context of the stated objectives of each of the relevant social values outlined in the Management Plan

Social Surroundings	
	for Ningaloo Marine Park and Muiron Islands Marine Management Area. 80. Identify management and mitigation measures for the proposal to ensure residual impacts to land and recreation uses, and amenity (including visual, noise, odour and dust) are not greater than predicted. 81. Conduct appropriate consultation to identify the potential impacts the proposal will have on the economic surroundings of people affected by the proposal (related to the physical area involved in the proposal), including in relation to tourism, commercial fishing and recreational fishing operations/business. 82. Identify and discuss the potential impacts to the economic surroundings of the people referred to in scope 81 above. The discussion must include consideration of the mitigation hierarchy. *Note: This should include consideration of information collected in relation to impacts to the physical or biological surroundings as required by relevant scopes within the other preliminary key environmental factors.* 83. Identify management and mitigation measures for the proposal to ensure impacts to economic surroundings are not greater than predicted. 84. Where significant residual impacts remain, and relate to MNES, propose an appropriate offsets package that is consistent with the *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*. Spatial data defining the area of significant residual impacts should also be provided
Relevant policy and guidance	***EPA Policy and Guidance*** *Statement of Environmental Principles, Factors and Objectives*, EPA, December 2016 *Instructions on how to prepare an Environmental Review Document*, EPA 2016 Environmental Factor Guideline - *Social Surroundings*, EPA, December 2016 ***Other policy and guidance*** *Aboriginal Heritage Act 1972.* Department of Aboriginal Affairs and Department of Premier and Cabinet (DAA & DPC) (2013) Aboriginal Heritage - *Due Diligence Guidelines*, Version 3.0, Perth, Western Australia

Social Surroundings	
	Visual Landscape Planning in Western Australia: a manual for evaluation, assessment, siting and design. Western Australian Planning Commission, 2007, Perth, Western Australia *Management Plan for the Ningaloo Marine Park and Muiron Islands Marine Management Area 2005 – 2015*. Department of Conservation and Land Management, Department of Conservation and Land Management and Marine Parks and Reserves Authority, Perth, Western Australia *WA Environmental Offsets Policy*, Government of Western Australia, 2011 *WA Environmental Offsets Guidelines,* Government of Western Australia, 2014 *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*, Department of Sustainability, Environment, Water, Population and Communities, October 2012
Peer Review	Commission, in consultation with the EPA, and include in the PER, a peer review of the VIA information by a suitably qualified individual with appropriate experience and expertise (scopes 73-80 as relevant to visual amenity).

4. Other environmental factors or matters

The EPA has identified the following other environmental factors or matters relevant to the proposal that must be addressed during the environmental review and discussed in the Environmental Review Document:

1. Terrestrial Environmental Quality

   Provide details of chemical and diesel storage, and power generation and management measures, including contingencies in the event of a spill, to ensure that contamination of land does not occur.

   Provide details on the presence of acid sulphate soils within the proposal area, and if present details of proposed management measures to be implemented during construction to minimise impacts to terrestrial environmental quality.

It is also important that the proponent be aware that other factors or matters may be identified during the course of the environmental review that were not apparent at the time that this ESD was prepared. If this situation arises, the proponent must consult with the EPA to determine whether these factors and/or matters are to be addressed in the ERD, and if so, to what extent.

5. Stakeholder consultation

The proponent must consult with stakeholders who are affected by, or are interested in the proposal. This includes the decision-making authorities (see Section 6), other relevant state government agencies and local government authorities, the local community and environmental non-government organisations.

The proponent must document the following in the ERD:

- identified stakeholders
- the stakeholder consultation undertaken and the outcomes, including decision-making authorities' specific regulatory approvals and any adjustments to the proposal as a result of consultation
- any future plans for consultation.

6. Decision-making authorities

At this stage, the EPA has identified the authorities listed in Table 4 as decision-making authorities (DMAs) for the proposal. Additional DMAs may be identified during the course of the assessment.

Table 5: Decision-making authorities

Decision-making authority	Relevant legislation
1. Minister for Aboriginal Affairs	*Aboriginal Heritage Act 1972* S18 Approval
2. Minister for Water	*Rights in Water and Irrigation Act 1914* Water extraction licence
3. Minister for Planning	*Planning and Development Act 2005* Town Planning Scheme Amendment
4. Minister for Transport	*Jetties Act 1926* Jetty Licence
5. Minister for Lands	*Land Administration Act 1997* *Section 91 Licence*
6. Shire of Exmouth	*Planning and Development Act 2005* Development Approval
7. CEO, Department of Water and Environmental Regulation	*Environmental Protection Act 1986* *Clearing Permit*

Figure 1: Regional location, tow route and bundle laydown area

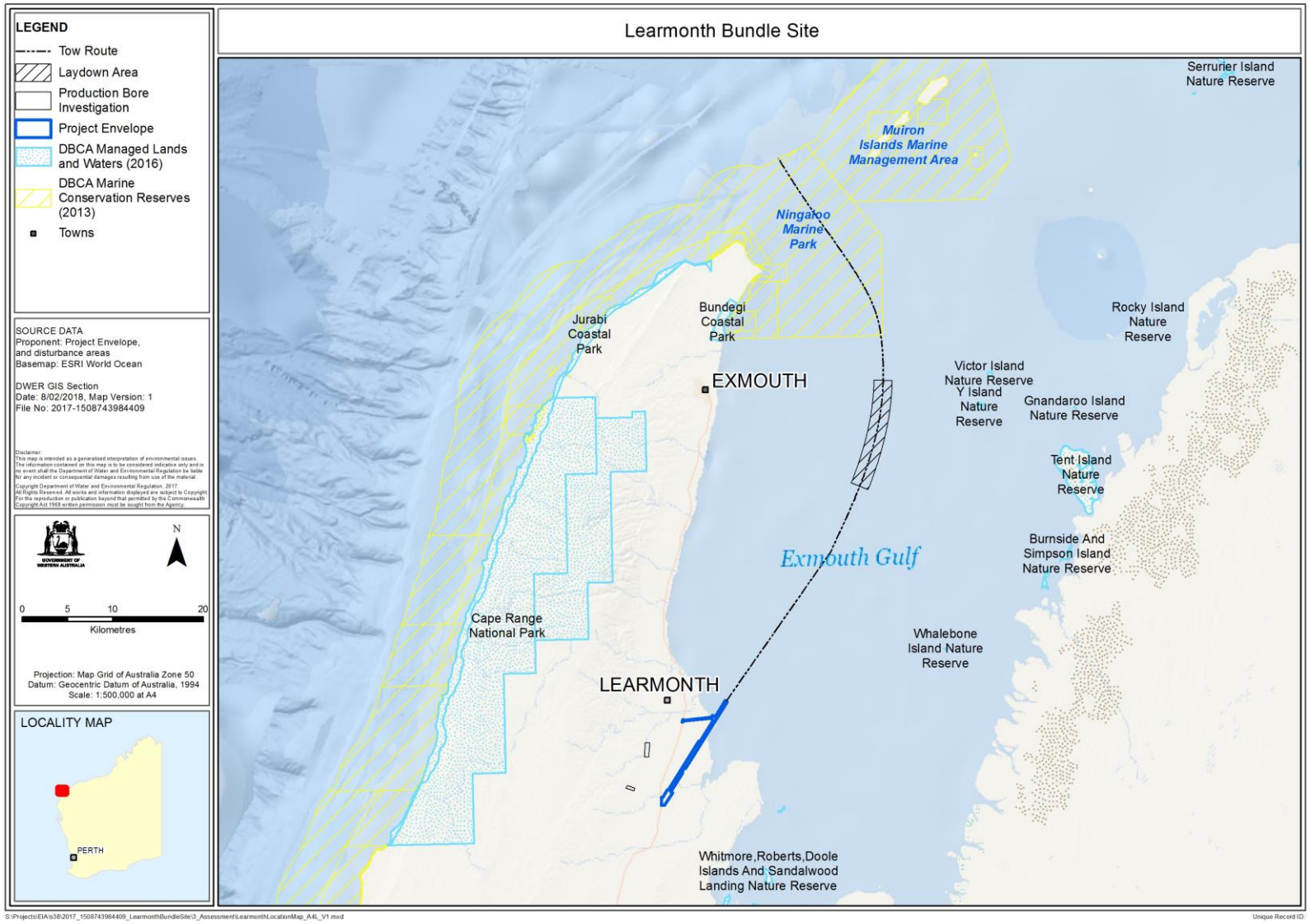

Figure 2: Onshore and Nearshore Development envelope